

Draft Copy – March 2018

UST SYSTEM INSTALLATION AND MAINTENANCE MANUAL



**Energy and Environment Cabinet
Division of Waste Management
Underground Storage Tank Branch
300 Sower Boulevard
Frankfort, Kentucky 40601
502-564-5981**

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1.0 INTRODUCTION

This document establishes the requirements for the notification, design, installation, operation, and maintenance of underground storage tank (UST) systems in accordance with 401 KAR 42:020. This manual shall be used in conjunction with 401 KAR 42:020, and may not encompass all requirements in their entirety.

Double walled tanks and piping, and secondarily contained ancillary equipment are designed to be more protective of the environment than traditional single walled underground storage tank (UST) systems. However, the design of these UST systems alone is not sufficient to prevent releases. Proper installation, operation, monitoring, and maintenance are necessary to prevent releases to the environment.

All generator tanks used solely for the generation of power shall meet all of the requirements in 401 KAR Chapter 42.

Dual use UST systems used in the operation of heating equipment, boilers, and furnaces with a secondary usage as part of an emergency generator system, are excluded, if:

1. Contents consumed on the premises where stored; and
2. Tank stores fuel oil number 1, 2, 4, 5, 6, or residual fuel oil.

The UST Branch may request documentation of product delivery and purchase for dual use tanks to verify an exemption.

An owner or operator of a UST system shall ensure all components of the UST system are compatible with the substance being stored in the UST. Owners and operators shall ensure that a UST System Compatibility Verification, DWM 4234, be submitted to the cabinet within thirty (30) days of bringing a UST system into use, following a replacement of a component, or change in regulated substance.

In accordance with 401 KAR 42:060, Section 1, confirmed or suspected releases, spills, and overfills, shall be reported immediately, in accordance with KRS 224.1-400(11), to the cabinet's 24-hour Emergency Response Line at (800) 928-2380 or (502) 564-2380.

An unusual operating condition, or conditions, as defined in 401 KAR 42:005, shall be reported immediately as a suspected release to the cabinet's 24-hour Emergency Response Line at (800) 928-2380 or (502) 564-2380 with the exception of the following:

1. The system equipment or component is found not to be releasing regulated substances to the environment;
2. Any defective system equipment or component is immediately repaired or replaced; and
3. For secondarily contained systems, any liquid in the interstitial space not used as part of the interstitial monitoring method is removed immediately.

If one (1) inch or more of water is present in any tank as the result of equipment failure, or if the cause cannot be explained, the owner or operator shall follow the requirements in accordance with 401 KAR 42:060, Section 1, and shall remove the water accumulation as soon as practicable.

2.0 NOTIFICATION REQUIREMENTS

Owners of UST systems are required to notify the cabinet of all UST and piping installations, address or ownership changes, as well as, registering UST systems with the cabinet in accordance with 401 KAR 42:020, Sections 1 and 2.

Owners shall submit a UST Notice of Intent to Install Underground Storage Tank or Piping, DWM 4231, to the appropriate cabinet at least fourteen (14) days prior to installation of a UST or an entire piping run, to afford a division representative the opportunity to be present during installation.

A UST Facility Registration, DWM 4225, shall be submitted within thirty (30) days of bringing a UST system into use or within thirty (30) days of any change to information on the most recently submitted registration.

Owners and operators shall ensure that a UST System Compatibility Verification, DWM 4234, be submitted to the cabinet within thirty (30) days of bringing a UST system into use or change in regulated substance.

An owner shall notify the cabinet within thirty (30) days of an address change by either submitting an amended UST Facility Registration, DWM 4225, or a UST Facility Owner Address Correction, DWM 4224.

For ownership changes, the new owner is responsible for completing and submitting an amended UST Facility Registration, DWM 4225, to the cabinet within thirty (30) days after the transaction. The previously assigned Agency Interest (AI) number shall be used for all registration documents. The cabinet may request a copy of the properly executed deed or other properly executed legal document necessary to support the transfer of the UST system.

If a previous registration document is required for review, a copy may be requested by completing an open records request through the Department of Environmental Protection at (502) 564-3999 or EEC.KORA@ky.gov.

3.0 TEMPORARY CLOSURE REQUIREMENTS

If a UST system, or compartment of a multi-compartment tank, is in temporary closure, the owner and operator shall continue operation and maintenance of corrosion protection, and release detection in accordance with 401 KAR 42:020, Sections 11 and 15.

In accordance with Section 3 of 401 KAR 42:020, spill and overfill operation and maintenance testing, and inspections are not required for a tank or compartment in temporary closure. If a tank or compartment, is empty as defined by 401 KAR 42:005, UST system release detection and walkthrough inspections are not required.

If a tank, or compartment, is in temporary closure for more than three (3) months, the following is required:

1. Vent lines shall be open and functioning; and
2. All other lines, pumps, manways, and ancillary equipment shall be capped and secure.

An amended UST Facility Registration, DWM 4225, shall be submitted to the UST Branch within thirty (30) days indicating the tanks have been placed in temporary closure.

For tanks in temporary closure for more than twelve (12) months that do not meet the performance standards for corrosion protection, spill containment and overfill prevention, and release detection in accordance with 401 KAR 42:020, the owner and operator shall either complete permanent closure or request an extension with the UST Branch.

If a tank is in temporary closure for more than twelve (12) months and meets the performance standards for corrosion protection, spill containment and overfill prevention, and release detection, the owner and operator shall perform a tank and line tightness test prior to returning the UST system into use. In addition, all outstanding or past due periodic tests are required prior to returning the UST system into use.

4.0 PERFORMANCE STANDARDS

4.1 Design and Maintenance Requirements

UST systems shall be designed and manufactured in accordance with the performance standards for new UST systems as established in 40 C.F.R. 280.20 and 401 KAR 42:020. In addition, UST systems shall:

1. Be equipped with double walled tanks and double walled piping (double walled piping is not required for "european" or "safe" suction systems);
2. Contain regulated substances within the outer wall of the double walled tank or double walled piping until the substances are detected and removed, if an inner wall failure occurs;
3. Be compatible with the substances stored in the tank;
4. Prevent releases of regulated substances to the environment at any time during the operational life of the UST system; and
5. Be designed to allow for continuous interstitial monitoring.

UST systems shall be designed, manufactured in accordance with a code of practice or industry standard developed by a nationally recognized association or independent testing laboratory. Examples of recognized associations and testing laboratories include Underwriters Laboratories, Inc. (UL), Underwriters Laboratories of Canada (ULC), Steel Tank Institute (STI), American Society of Mechanical Engineers (ASME), National Association of Corrosion Engineers (NACE), American Petroleum Institute (API), National Fire Protection Association (NFPA), and American Society of Testing and Materials (ASTM).

4.2 UST System Installations

UST systems shall be installed in accordance with the manufacturer's instructions, in a manner that will prevent releases of regulated substances for the entire operating life of the UST system. UST system installations shall be performed by an installation contractor who holds a current certification issued by the Kentucky State Fire Marshal's Office (SFMO), in accordance with 815 KAR 30:060. Installations shall be performed in accordance with a code of practice or industry standard developed by a nationally recognized association or independent testing laboratory, such as American Petroleum Institute Publication 1615, "Installation of Underground Petroleum Storage Systems", Petroleum Equipment Institute Publication RP100-11, "Recommended Practices for Installation of Underground Liquid Storage Systems", or their equivalents. UST system installations shall comply with the applicable sections of National Fire Protection Association (NFPA) Code 30, "Flammable and Combustible Liquids Code", and NFPA Code 30A, "Code for Motor Fuel Dispensing Facilities and Repair Garages".

When an existing tank is replaced with a new tank, the new tank shall not be connected to existing piping unless that piping also meets the standards in 401 KAR 42:020 and this manual.

An existing tank may not be removed and reinstalled unless it meets the requirements in 401 KAR 42:020 and this manual. Before reinstalling any existing tank, the following requirements shall be met:

1. The tank shall be inspected and tested by the equipment's manufacturer; and
2. The owner or operator shall submit the following documentation to the cabinet:
 - a) Written certification from the manufacturer indicating the tank is suitable for reinstallation; and
 - b) A permit from the Kentucky SFMO in accordance with 815 KAR 30:060.

4.3 UST System Repairs

UST system repairs shall be performed by an installation contractor who holds a current certification issued by the Kentucky SFMO, in accordance with 815 KAR 30:060. Owners and operators shall ensure that repairs shall prevent releases due to structural failure or corrosion.

Any repair to a tank, piping, or UST component shall be tested within thirty (30) days of the repair. The test shall be adequate to detect a release from the repaired component of the UST system. The owner and operator shall submit a UST System Compatibility Verification, DWM 4234, to the UST Branch in accordance with 401 KAR 42:020, Section 12.

4.4 Operation and Maintenance

UST systems shall be operated, tested, and maintained in accordance with the equipment manufacturer's instructions, and operated and maintained in a manner that will prevent releases of regulated substances for the entire operating life of the UST system. UST system equipment shall not be stored, transported, handled, or installed in a manner that might damage the equipment or void the equipment manufacturer's warranty. Any UST system equipment found to be damaged, degraded, deteriorated, corroded, non-functioning, improperly designed, improperly installed, leaking, incompatible, or otherwise not performing in accordance with the equipment manufacturer's original design specifications, 401 KAR 42:020, or this manual shall be immediately repaired, replaced, or permanently closed.

Owners and operators shall follow the inspection, maintenance, testing, and reporting requirements in 401 KAR 42:020, 42:060, and this manual. Owners and operators may also refer to applicable guidance documents, recommended practices, or industry standards for recommendations on properly operating and maintaining a UST system such as:

1. "Operating and Maintaining Underground Storage Tank Systems: Practical Help and Checklists", EPA 510-K-16-001;
2. "UST Systems: Inspecting and Maintaining Sumps and Spill Buckets: Practical Help and Checklist", EPA 510-R-05-001; or
3. "Recommended Practices for the Inspection and Maintenance of UST Systems", Petroleum Equipment Institute Publication RP900-17.

4.5 Upgrading Existing UST Systems

Upgrading requirements for existing UST systems are established in 40 C.F.R. 280.21, except interior lining shall not be an acceptable method of corrosion protection and all interior lined steel tanks that had not, as of December 22, 2013, been upgraded with impressed current corrosion protection shall be permanently closed immediately in accordance with 401 KAR 42:060, Section 6.

4.6 Double Walled Tanks and Piping

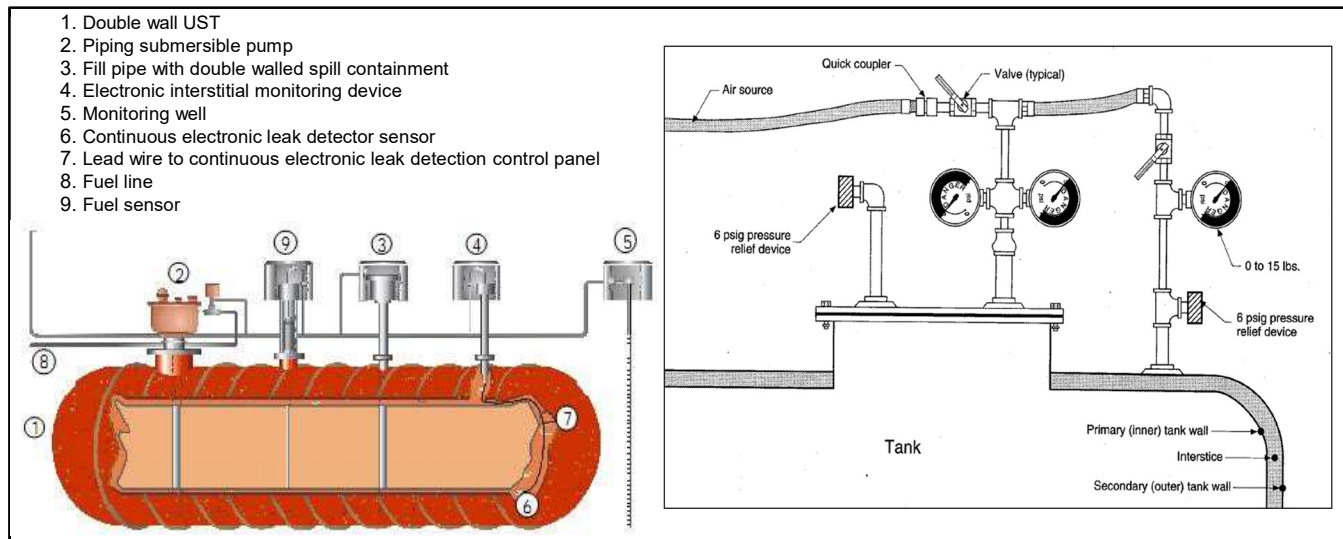
All newly installed tanks and piping (excluding "european" or "safe" suction piping) shall be designed and manufactured with double walled construction consisting of an inner and outer wall with an interstitial space between the tank walls as shown in Figure 1. The interstitial space shall be continuously monitored for releases using a method of interstitial monitoring certified, as of the time of testing, by an independent third-party evaluator.

Both the inner and outer tank walls shall be designed to allow testing for structural integrity and tightness. Tanks shall be designed and manufactured to contain regulated substances within the outer tank wall until the substances can be detected and removed if an inner tank wall failure occurs. All tank openings shall be equipped with liquid-tight caps or covers. Tanks shall be operated and maintained to prevent releases of regulated substances and the ingress of water for the operational life of the tank.

When fifty (50) percent or more of a piping run is replaced, as measured from, the tank to the farthest dispenser or other end-use equipment, excluding connectors, the entire piping run shall meet the requirements in 401 KAR 42:020 and this manual.

All noncorrodible piping shall meet or exceed the Standard for Safety established by Underwriters Laboratories Inc. in "Standard for Nonmetallic Underground Piping for Flammable Liquids" – UL 971 as referenced in the note to 40 C.F.R 280.20(b)(1). Piping shall be operated and maintained to prevent releases of regulated substances for the operational life of the piping.

Figure 1 –Double Walled UST System¹



4.6.1 Exception to Double Walled Requirements for Suction Piping

A UST system shall be considered a "european" or "safe" suction system if the following criteria are met:

1. The below grade piping operates at less than atmospheric pressure;
2. The below grade piping is sloped so the contents of the piping will drain back into the tank if the suction is released;
3. Only one check valve is installed for each piping run; and
4. The check valve is located directly below, and as close as practical to, the suction pump.

If suction piping is installed and determined to be a "european" or "safe" suction system, piping release detection, double walled requirements, and secondary containment for piping are not required.

If suction piping is installed that is not a "european" or "safe" suction system, piping release detection, double walled requirements, and secondary containment for piping are required. For suction systems that require containment sumps (secondary containment), the point at which the suction piping connects to the stub-out/riser tank shall be installed within a liquid-tight containment sump in accordance with 401 KAR 42:020 and this manual. Suction piping shall be installed with a ball valve or a product line isolation valve contained within the containment sump that will allow the suction piping to be isolated for precision line tightness testing without breaking the pipe connections. The containment sump is not required to be continuously monitored if the suction piping is a "european" or "safe" suction system.

4.7 Testing Requirements at Installation

Both the inner and outer walls of the double walled tank and piping shall test tight after installation, prior to dispensing from the UST. The tightness test shall be conducted by a tester who meets the requirements established in 401 KAR 42:020, Section 15(6). Testers shall use a method of tightness testing certified, as of the time of testing, by an independent third-party evaluator. Testers shall not use a test method or device that may cause damage to the UST system.

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All spill containment devices, spill prevention devices, overfill prevention devices, and automatic line leak detectors, installed in accordance with 401 KAR 42:020 and this manual shall be tested to ensure the device is functioning as designed prior to dispensing from the UST system. Testers shall use a test method approved by the device's manufacturer or a code of practice or industry standard developed by a nationally recognized association or independent testing laboratory to ensure the device is functioning as designed.

Owners and operators shall maintain all testing records for a period of thirty-six (36) months.

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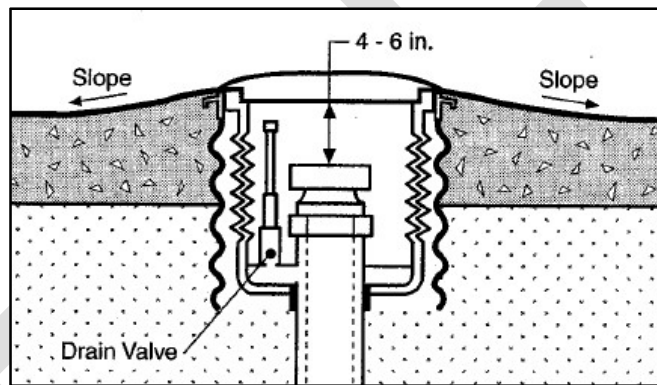
5.0 SPILL CONTAINMENT DEVICES (SPILL BUCKETS AND CATCH BASINS)

5.1 Design and Installation Requirements

All spill containment devices installed after April 1, 2012 shall be double walled, liquid-tight, and compatible with the substance being stored in the tank. Spill containment devices shall be installed in accordance with the manufacturer's instructions.

Spill containment devices shall be liquid-tight on all sides and at all penetrations, and shall be designed to prevent water ingress and product loss. Spill containment devices shall be designed to be structurally suitable for underground burial applications and with sufficient structural integrity to resist the forces associated with backfill, high ground water and ground movement. Spill containment devices shall be designed to allow for visual inspection and access to the components in the spill containment device, and to accommodate the installation of electronic monitoring devices. Regulated substances, water, or debris shall not be allowed to accumulate in any spill containment devices. All liquid accumulations and debris in any spill containment device shall be immediately removed and disposed of properly.

Figure 2 - Double Walled Spill Bucket²



5.2 Periodic Testing

Spill containment devices installed after April 1, 2012 shall be of double wall construction, tested at installation, and at least every thirty-six (36) months. The test shall be able to assess the integrity of both the inner and outer wall. If a spill containment device is repaired, it shall be tested within thirty (30) days. Testers shall conduct a manufacturer approved integrity test to verify liquid-tightness.

Spill containment devices installed prior to April 1, 2012 shall be initially tested prior to October 13, 2018 and at least every thirty-six (36) months thereafter. If a single wall spill containment device is found to be defective or not operating as designed, it must be replaced with a spill containment device that meets the performance standards for new installations (i.e., double walled spill containment device).

Periodic testing of spill containment devices shall not be required if the device is:

1. Double walled;
2. The interstitial area is monitored at least every thirty (30) days; and
3. Monitoring records are retained for the previous thirty-six (36) months.

If monitoring records cannot be maintained then periodic testing will be required.

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Owners and operators shall provide copies of spill containment device tests to the cabinet as follows:

1. Within seven (7) days for failing test results; and
2. Within thirty (30) days for passing test results.

Owners and operators shall retain documentation of test results for at least thirty-six (36) months.

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6.0 OVERFILL PREVENTION

6.1 Design and Installation Requirements

Overfill prevention equipment shall be installed on each tank, designed to stop product flow, reduce product flow, or alert the delivery person during delivery that the tank is nearing full capacity in accordance with 401 KAR 42:020, Section 9. This allows the person filling the tank to stop product delivery before the tank becomes full and begins releasing product into the environment.

For all newly installed or replaced tanks, overfill prevention equipment shall be installed with an extractable fitting, to allow for inspection, maintenance, and testing, and shall be capable of:

1. Automatically shutting off flow into the tank when the tank is no more than ninety (95) percent full; or
2. Alerting the transfer operator when the tank is no more than ninety (90) percent full by restricting the flow into the tank, or triggering a high-level alarm.

Owners and operators are not required to use spill and overfill prevention equipment if transfers of no more than twenty-five (25) gallons are deposited in the UST system at one time.

Flow restrictors, also known as ball floats, shall not be used when overfill prevention is installed or replaced after January 4, 2019 in accordance with 401 KAR 42:020, Section 9 and this manual. Approved overfill devices are automatic shutoff devices and high level alarms.

6.2 Flow Restrictors (Ball Floats)

Flow restrictors (ball floats) shall not be installed as a form of overfill prevention for newly installed tanks. All existing flow restrictors shall be removed and physically inspected to verify the ball and cage are intact and functioning properly. Any flow restrictor found to be defective or not functioning as designed, shall not be repaired or replaced with another flow restrictor. An alternative approved overfill device shall be installed in its place.

If the flow restrictor is inaccessible, the owner and operator may choose to have an alternative approved overfill prevention device installed, as long as the alternative has been designed to activate when the tank is no more than ninety (90) percent capacity. If the newly installed overfill prevention device is set to activate at more than ninety (90) percent capacity, the flow restrictor and housing shall be accessed and removed.

6.3 Periodic Testing

Overfill prevention devices shall be tested at installation and every thirty-six (36) months thereafter. Existing overfill prevention devices shall be initially tested by October 13, 2018, and every thirty-six (36) months. Testers shall conduct a manufacturer-approved test or test using a code of practice developed by a nationally recognized association or independent testing laboratory to verify the equipment will prevent an overfill of fuel from the delivery truck to the tank. If an overfill device is repaired, it shall be tested within thirty (30) days.

Owners and operators shall provide copies of overfill prevention device tests to the cabinet as follows:

1. Within seven (7) days for failing test results; and
2. Within thirty (30) days for passing test results.

Owners and operators shall maintain written records documenting the test results for thirty-six (36) months.

7.0 SPILL PREVENTION DEVICES (UNDER-DISPENSER CONTAINMENT AND SUMPS)

If an under-dispenser containment (UDC) or sump sensor monitoring device detects the presence of a liquid, the owner and operator shall ensure UDC or sump is immediately inspected and repaired if necessary. If a measureable layer of free product is discovered in a UDC or sump, requirements of 401 KAR 42:060, Section 1, shall be met.

Regulated substances, water, or debris shall not be allowed to accumulate in any sump. All liquid accumulations and debris in any sump shall be immediately removed. If liquids are discovered within a UDC or sump, the device shall be further inspected to determine the source of liquid infiltration, the liquid removed, and the UDC or sump repaired as necessary.

7.1 Design, Installation, and Maintenance Requirements for Under-Dispenser Containment

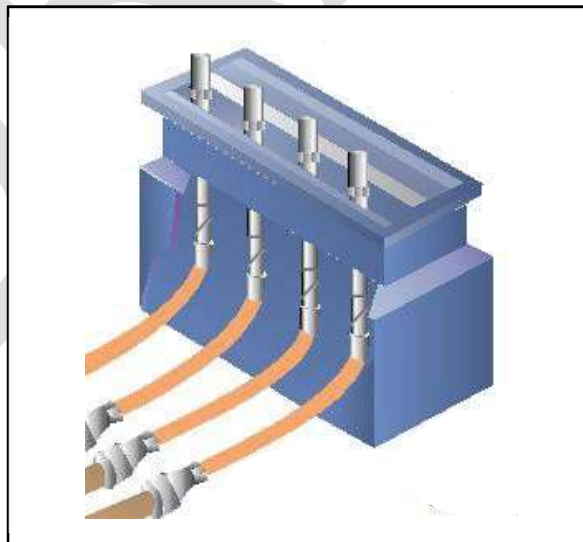
In accordance with 401 KAR 42:020, Section 10, the installation of liquid-tight UDC shall be required for all new or replaced dispensers, installed after April 1, 2012, when the following conditions exist:

1. A new dispenser is installed in an area where a UST system dispenser did not previously exist; or
2. The equipment below the shear valve or union (e.g. flexible connectors, risers, and other transitional components) used to connect the dispenser to the piping is replaced, in conjunction with the replacement of an existing dispenser.

If a non-contained dispenser is replaced with a new dispenser, which connects to the piping, utilizing the existing connecting equipment does not require the addition of UDC unless the piping is double walled and interstitial monitoring is being used as the method of release detection.

UDC shall be liquid-tight on all sides and at all penetrations, and designed to prevent water ingress and product loss. UDC shall be designed to be structurally suitable for underground burial applications and with sufficient structural integrity to resist the forces associated with backfill, high ground water and ground movement. Design requirements for UDC shall allow for visual inspection, access to the components, and to accommodate the installation of electronic monitoring devices.

Figure 3 – Under-Dispenser Containment (UDC)

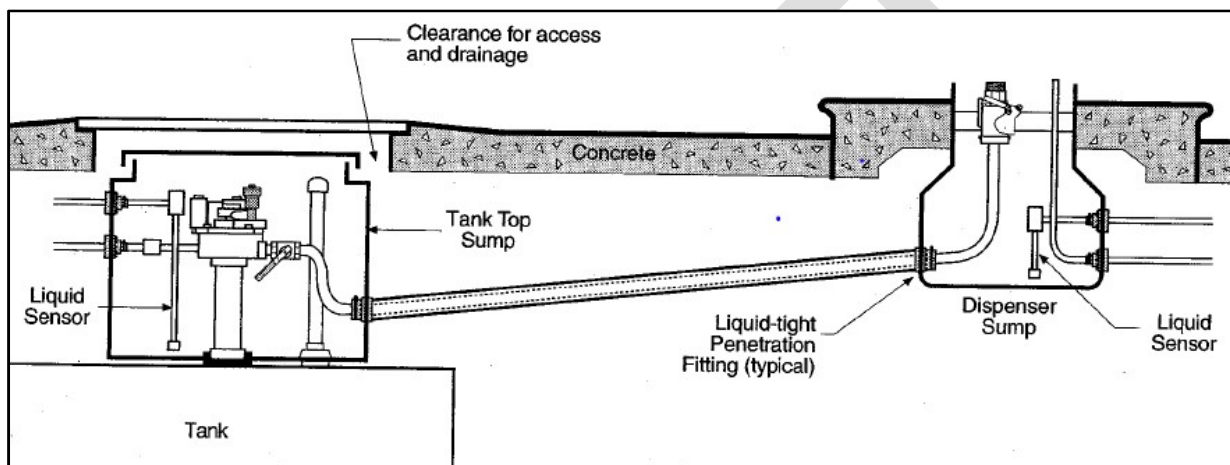


7.2 Design, Installation, and Maintenance Requirements for Liquid-Tight Sumps

In accordance with 401 KAR 42:020, Section 10, all new or replaced sumps containing product piping, installed in conjunction with a UST system installed after April 1, 2012, shall be liquid-tight. Sumps shall be compatible with the substance stored, and continuously monitored for the presence of liquids.

A sump shall be liquid-tight on all sides and at all penetrations, and shall be designed to prevent water ingress and product loss. Sumps shall be designed to be structurally suitable for underground burial applications and with sufficient structural integrity to resist the forces associated with backfill, high ground water, ground movement, and vehicular traffic. Design requirements for sumps shall allow for visual inspection and access to the components, and to accommodate the installation of electronic monitoring devices.

Figure 4 – Sump³



7.3 Periodic Testing

UDC and sumps, installed in accordance with Section 10 of 401 KAR 42:020, shall be inspected every twelve (12) months and tested for liquid-tightness every thirty-six (36) months. Testers shall conduct a manufacturer approved integrity test to verify liquid-tightness. If a repair or installation of new equipment connects to the UDC or sump, the equipment shall be tested within thirty (30) days.

Periodic testing of UDC or sumps shall not be required if the UDC or sump is:

1. Double walled;
2. The interstitial area is monitored at least every thirty (30) days; and
3. Monitoring records are maintained.

If monitoring records cannot be maintained then periodic testing will be required.

Owners and operators shall provide copies of overfill prevention device tests to the cabinet as follows:

1. Within seven (7) days for failing test results; and
2. Within thirty (30) days for passing test results.

Owners and operators shall maintain records documenting the test results for thirty-six (36) months.

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8.0 CORROSION PROTECTION

8.1 Cathodic Protection Evaluation

UST system components that routinely contain product and are regularly, or intermittently, in contact with soil, water, or backfill, shall be protected from corrosion in accordance with 401 KAR 42:020, Section 11. A cathodic protection evaluation shall be performed to determine whether the UST system components are being protected from corrosion.

If a cathodic protection system has been installed on a UST component for intermittent contact with soil, water, and backfill is tested when the system is isolated, the system must demonstrate corrosion protection potential by either passing a standard cathodic protection test or by having a 100 mV drop test performed. Responses submitted stating “isolated at time of the test” are not acceptable for demonstrating corrosion protection.

If a system was originally installed for intermittent contact with soil, water, and backfill, and modification to the UST system have been made to ensure contact with soil, water, and backfill will no longer occur, the owner and operator may submit, to the UST Branch, documentation of the modification with a request for the cathodic protection requirements to be excluded.

8.2 Periodic Testing

A cathodic protection evaluation shall be performed within one hundred and eighty (180) days from an installation, repair, or modification, and at least every thirty (36) months thereafter. Testing must be performed by a certified third-party corrosion protection tester that meets the requirements of 401 KAR 42:020, Section 11(9).

Owners and operators shall provide copies of the evaluation and supporting documentation to the cabinet within thirty (30) days of an evaluation as referenced in Record Keeping, Section 12.0 of this manual. Owners and operators shall maintain records for the last two (2) cathodic protection evaluations.

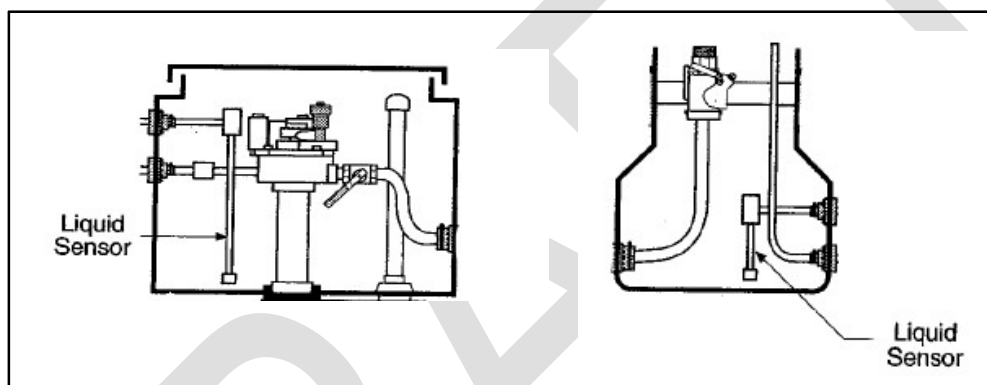
9.0 RELEASE DETECTION REQUIREMENTS

9.1 Release Detection Requirements for UST Systems Installed After April 1, 2012

Owners and operators shall continuously monitor tanks and piping for the presence of a release. An electronic method of continuous interstitial monitoring, certified by an independent third-party evaluator, shall be the primary release detection method for tanks and piping installed after April 1, 2012.

UDC and sumps shall be continuously monitored for liquids by a monitoring device, certified by an independent third-party evaluator, such as a liquid float sensor, optical sensor, magnetostrictive sensor, or another sensor approved by the cabinet ("european" or "safe" suction piping are exempt from this requirement). All sensors shall be installed in accordance with the sensor manufacturers' instructions. Sensors shall be properly anchored and positioned below the lowest penetration point within the UDC or sump so that the device can detect the presence of liquids in the UDC or sump.

Figure 5 – Sump Sensor Positioning⁴



Owners and operators shall obtain a record, at least once every thirty (30) days, to verify that release detection is being performed and no releases have occurred. If the device is not capable of printing sensor readings, a monthly log shall be maintained to verify release detection is being performed and no releases have occurred. This shall be documented on UST Visual Interstitial Log, DWM 4236. All release detection records for the most recent monthly verification and for the preceding twelve (12) months shall be maintained in accordance with Section 9.4 of this manual. Release detection equipment shall be operated and maintained in accordance with the equipment manufacturer's recommendations, Section 15 of 401 KAR 42:020 and this manual.

When a sensor alarm is triggered, the owner or operator shall ensure the device is immediately inspected for the presence of free product. If free product is discovered the requirements of 401 KAR 42:060, Section 1, shall be met. The presence of regulated substances in an interstitial space of a double walled tank shall be reported as a suspected release in accordance with 401 KAR 42:060, Section 1. Owners and operators shall investigate, and conduct repairs if necessary, in response to any suspected release. Within twenty-four (24) hours of discovery, owners and operators shall follow the equipment manufacturers' instructions for removing regulated substances from an interstitial space, UDC, sump, or other containment device.

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9.2 Release Detection Requirements for UST System Installed Prior to April 1, 2012

If owners and operators utilize interstitial monitoring as the primary method of release detection for tanks and piping installed prior to April 1, 2012, the following requirements shall be met:

1. Use electronic devices capable of printing sensor readings and obtain a record no less than every thirty (30) days; or
2. Maintain a monthly interstitial monitoring log on the UST Visual Interstitial Log, DWM 4236, for devices not capable of printing sensor readings; and
3. Meet the requirements for UDCs and sumps in 401 KAR 42:020, Section 10.

Owners and operators shall ensure the method of release detection is certified by an independent third-party evaluator prior to the method being utilized. Release detection methods for tanks must be in accordance with 401 KAR 42:020, Section 15, and may include:

1. Manual tank gauging (for a UST system no larger than 2,000 gallons);
2. Statistical inventory control (SIR);
3. Automatic tank gauging (ATG); or
4. Interstitial monitoring.

Release detection for pressurized piping shall be in accordance with 401 KAR 42:020, Section 15(9), and shall have a line tightness test performed every twelve (12) months, or be monitored monthly by electronic leak detection equipment or interstitial monitoring.

9.3 Additional Release Detection Requirements for Pressurized Piping

All pressurized piping shall be equipped with an automatic line leak detector (ALLD), certified by an independent third-party evaluator, capable of detecting a leak from the piping of three (3) gallons-per-hour at ten (10) pounds per square inch of line pressure in accordance with 401 KAR 42:020, Section 15. Line leak detectors are required in addition to the continuous interstitial monitoring of pressurized double walled piping. Line leak detectors shall be designed and operated to alert the operator of the presence of a leak by restricting or shutting off the flow of regulated substances through the piping, or by triggering an audible or visual alarm. The ALLD may be either an electronic line leak detector or a mechanical line leak detector.

9.4 Periodic Testing Requirements

Release detection equipment shall be tested as described in Section 9.4.1 and 9.4.2 of this manual. Tests shall be performed by a tester who meets the requirements established in 401 KAR 42:020, Section 15(6). Testers shall conduct a test using a manufacturer approved method, a code of practice developed by a nationally recognized association or independent laboratory, or a method approved by the cabinet.

Owners and operators shall provide copies of release detection operational tests, tank tightness tests and line tightness tests to the cabinet as follows:

1. Within seven (7) days for failing test results; and
2. Within thirty (30) days for passing test results.

Owners and operators shall retain the most recent twelve (12) months of release detection records at all times. Annual operational tests shall be retained for thirty-six (36) months, and tank tightness tests and line tightness tests shall be retained until the next test is performed. Refer to Section 12.0 of this manual for record keeping of release detection records and testing.

9.4.1 Electronic Release Detection Equipment

Electronic release detection equipment shall be inspected every thirty (30) days by an owner or trained combined Class A and Class B operator, in accordance with Section 11.0 of this manual, as part of the monthly walkthrough inspection, and operationally tested every twelve (12) months.

Electronic release detection equipment includes automatic tank gauge (ATG) consoles and probes; interstitial monitoring consoles, probes, and sensors; and other electronic devices designed to detect releases of regulated substances, except for electronic line leak detectors (ELLD), which shall be tested in accordance with Section 9.4.2 of this manual.

9.4.2 Automatic Line Leak Detectors

All automatic line leak detectors (ALLD) installed on pressurized piping systems shall be performance tested every thirty (30) days. Performance testing is required for both manual and electronic line leak detectors (ELLD), even if the equipment manufacturer designates the line leak detector as “self-testing”. The performance test shall verify that the ALLD is capable of detecting a leak rate equivalent to three (3) gallons-per-hour at ten (10) pounds per square inch of line pressure, in accordance with 401 KAR 42:020, Section 15(9).

10.0 OPERATOR TRAINING

Operator training requirements for UST systems shall be as established in 40 C.F.R. 280 Subpart J and 401 KAR 42:020. An owner of a UST system registered, but not permanently closed:

1. Prior to January 4, 2019, shall immediately designate at least one (1) individual to be trained, within thirty (30) days of designation, as a combined Class A and Class B operator, if such an individual has not previously been designated and trained in accordance with requirements of the cabinet.
2. On or after January 4, 2019, shall within thirty (30) days of registration, designate at least one (1) individual to be trained, within thirty (30) days of designation, as a combined Class A and Class B operator.

If an owner of a UST system no longer has a trained combined Class A and Class B operator, the owner shall immediately designate another individual as a combined Class A and Class B operator who shall complete operator training within thirty (30) days.

Class A and Class B operator training must include general knowledge requirements that encompass all regulatory requirements, typical equipment used at a UST facility, and at a minimum, must teach the purpose, methods, and functions as listed below.

1. Spill and Overfill preventions
2. Release detection and related reporting
3. Corrosion Protection
4. Emergency response
5. Product and equipment compatibility and demonstration
6. Financial responsibility
7. Temporary and permanent closure
8. Related reporting, record keeping, testing, and inspections
9. Environmental and regulatory consequences of releases
10. Operation and maintenance
11. Training requirements for Class C operators
12. If an owner of a UST system no longer has a trained Class A and Class B operator, the owner shall immediately designate another individual as a combined Class A and Class B operator who shall complete operator training within thirty (30) days.

It is the responsibility of the UST system owner to ensure the following requirements are met.

1. A trained combined Class A and Class B operator successfully retrain annually, within twelve (12) months of the most recent training date, unless otherwise directed or approved by the cabinet;
2. An operator training certificate, in accordance with this section, be submitted to the cabinet within thirty (30) days of completion; and
3. An operator trained in accordance with this section, shall submit to the cabinet upon request, documentation verifying that the training requirements have been met.

11.0 WALKTHROUGH INSPECTIONS

An owner or operator shall ensure the monthly and annual walkthrough inspections are completed in accordance with 401 KAR 42:020, Section 17. Walkthrough inspections may be conducted by an owner, operator, or combined Class A and Class B operator. Walkthrough inspections shall be maintained for twelve (12) months after the last annual walkthrough inspection completion date as referenced in Record Keeping, Section 12.0 of this manual. Documentation of walkthrough inspections shall be made available to the cabinet upon request.

11.1 Monthly Walkthrough Inspections

Monthly walkthrough inspections shall include the following:

1. Visually check spill prevention equipment for damage, remove liquids and debris, remove obstructions in the fill tube, and check the fill cap to ensure it is securely attached to the fill tube;
2. Check double walled spilled prevention equipment with interstitial monitoring for a leak in the interstitial area; and
3. Check release detection equipment to ensure the equipment is in operation with no alarms or other unusual operation conditions present, and that records of release detection testing are reviewed and current.

If a UST system has product deliveries less frequent than every thirty (30) days, the monthly walkthrough inspection is not required every thirty (30) days and will instead be required at the time of product delivery.

11.2 Annual Walkthrough Inspections

Annual walkthrough inspections shall include the following:

1. Visually check spill prevention equipment for damage, remove liquids and debris, remove obstructions in the fill tube, and check the fill cap to ensure it is securely attached to the fill tube;
2. Check double walled spilled prevention equipment with interstitial monitoring for a leak in the interstitial area;
3. Check release detection equipment to ensure the equipment is in operation with no alarms or other unusual operation conditions present, and that records of release detection testing are reviewed and current;
4. Visually check UDC and containment sumps for damage, leaks to the containment area, or releases to the environment, remove liquids (in contained sumps) and debris;
5. Check double walled sumps with interstitial monitoring for a leak in the interstitial area; and
6. Check hand held release detection equipment (i.e., tank gauge sticks) and replace if damaged or unable to function as originally designed.

12.0 RECORD KEEPING

All records and documentation shall be retained in accordance with 401 KAR 42:020, Section 19.

Documentation	Retention
Installation records	Lifetime of UST system or components
Upgrade and repair records	
Compatibility records	
Release detection records – Monthly	12 months
Overfill prevention devices	Until next test is performed (36 months)
Spill containment devices (<i>i.e., spill buckets</i>)	
Spill prevention devices (<i>i.e., UDC and sumps</i>)	
Release detection – Annual (<i>i.e., electronic release detection equipment, line leak detectors, rectifier logs, etc.</i>)	
Tank tightness tests	
Line tightness tests	12 months after the last Annual Walkthrough Inspection
Walkthrough inspections – Monthly	
Walkthrough inspections – Annual	2 previous evaluations (6 years)
Corrosion protection (<i>i.e., cathodic protection evaluations</i>)	